

**CLAIMS**

The following is a detailed listing of all claims that are, or were, in the Application.

1. (Canceled)

2. (Currently amended) A digital control system for controlling a switch of a voltage converter, comprising:

- a duty cycle generator that provides a duty cycle for the switch;
- a digital counter that stores a plurality of entries, wherein each entry can be input to the duty cycle generator for modifying the duty cycle in response to a varying load;
- a first comparator that compares an output voltage to a reference voltage; and
- an algorithm generator distinct from the duty cycle generator, digital counter, and first comparator, the algorithm generator producing an algorithm that determines the rate of change for modifying the duty cycle;

wherein if the first comparator detects that the output voltage is higher than the reference voltage, the algorithm generator affecting the input of entries from the digital counter into the duty cycle generator, thereby adjusting the rate of change for modifying the duty cycle of the switch.

3. (Original) The system of claim 2 further comprising a second comparator having a reference different than the first comparator.

4-14. (Canceled)

15. (Withdrawn) A method for bucking or boosting a voltage, comprising:

- providing groups of pulses, each group comprising one or more pulses;
- detecting the rate of change of an output voltage over time;

modifying the frequency of generation of the groups of pulses in response to said rate of change;

detecting the magnitude of the output voltage; and

changing a pulse width of the output voltage in response to the detected magnitude.

16-21. (Canceled)

22. (New) A method for digitally controlling a switch of a voltage converter, comprising:

providing a duty cycle for the switch with a duty cycle generator;

storing a plurality of entries in a digital counter, wherein each entry can be input to the duty cycle generator for modifying the duty cycle in response to a varying load;

compares an output voltage to a reference voltage with a first comparator; and

producing an algorithm that determines a rate of change for modifying the duty cycle with an algorithm generator, wherein the algorithm generator is distinct from the duty cycle generator, digital counter, and first comparator;

wherein if the output voltage is detected to be higher than the reference voltage, affecting the input of entries from the digital counter into the duty cycle generator with the algorithm generator, thereby adjusting the rate of change for modifying the duty cycle of the switch.